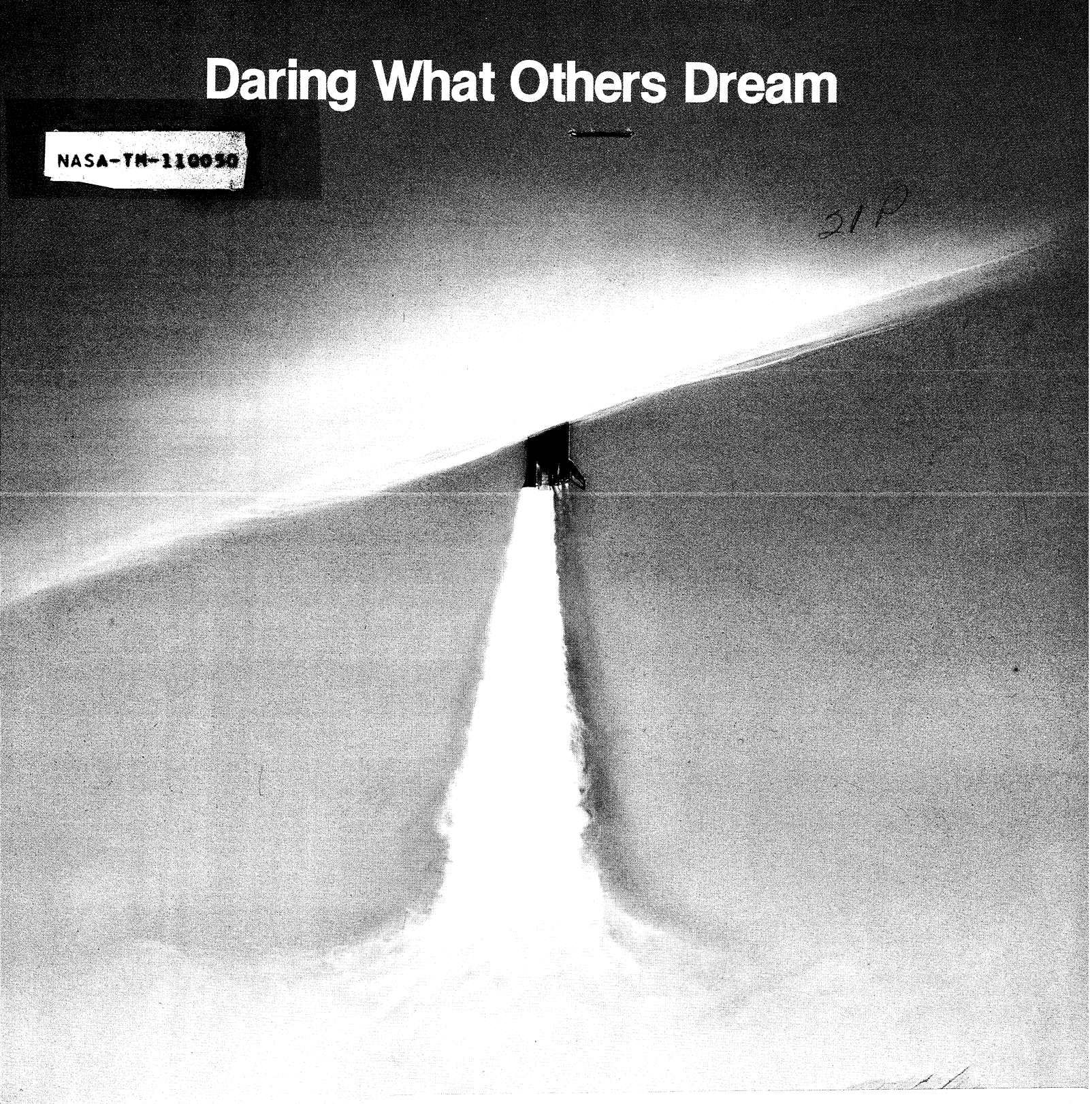
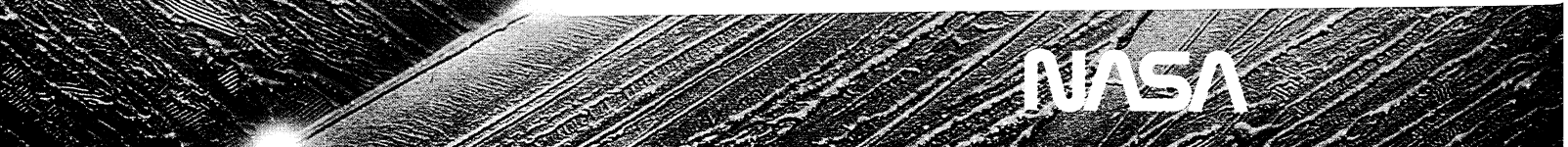
Daring What Others Dream





NASA

Choosing the right career path is one of the most important decisions you'll ever make. That's why we've created this brochure—to open your eyes to the world of challenge, discovery and advancement that only a NASA career can offer.

What you're about to read probably won't answer all your questions, but it will expand your understanding of how NASA has evolved into the world leader in space exploration and aeronautical research. We also hope it will give you more information about the kinds of research we do, where our Centers are located...and the important role *you* could play by joining "the NASA team."

Cover: Andreas Nottebohm's "Taking Off to Make the

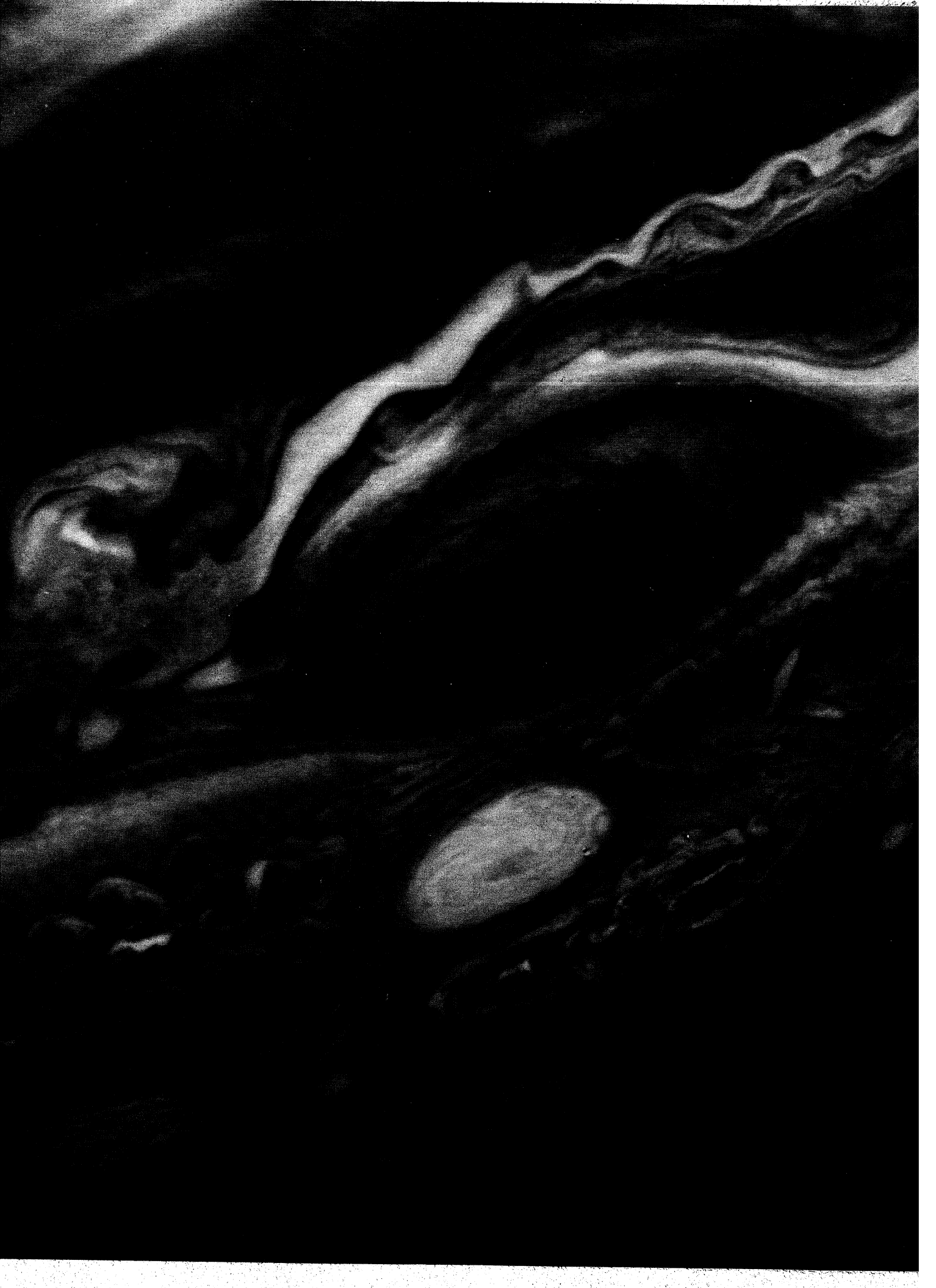
Daring What Others Dream

Imagine a career that challenges your intellect...your creativity...your sense of daring...and your unending quest for knowledge. That's what NASA has to offer. A dynamic world of opportunity and advancement where every day begins on the threshold of discovery.

We offer you what no other career can match. The freedom of working in a creative and supportive research environment. The opportunity to be part of highly visible projects like the Space Shuttle and the Space Station. Challenging and rewarding programs for professional and educational growth. And the chance to work for your country along with some of the most distinguished scientists and engineers of our time.

At NASA you not only work in a state-of-the-art environment...you *are* the state of the art.

The Orbiter Columbia backs out of its work stand at the Kennedy Space Center in preparation for the third Space



Why NASA Needs You

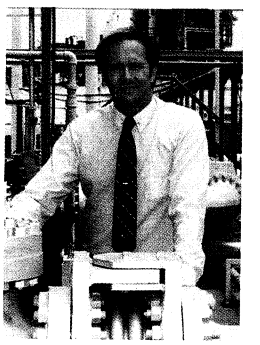
To stay at the forefront of technology and exploration, NASA needs exceptional people to lead the way. That's why we're always looking for bright, innovative, highly motivated graduates who have majored in:

Aerospace Engineering
Aeronautical Engineering
Mechanical Engineering
Electrical Engineering
Electronic Engineering
Computer Science
Physics
Chemistry
Mathematics

Together, we can strengthen our country, enrich the lives of all humanity and help shape the future of our Earth.

A model of an advanced supersonic fighter about to be tested in the Ames Research Center's 40 x 80-ft. wind tunnel.

An air of celebration pervades the mission operations control room at Johnson Space Center following the successful landing of STS-4.



"I've always been a space buff, but the day I first saw the Orbiter Enterprise when on a tour of Marshall Space Flight Center, I decided that working for NASA would be my goal. It's important to me that I work for an organization that is doing something to benefit our future. I believe that NASA is making a positive contribution to the future of our country—and the world."

Jeffrey Jones
B.S., Biology,
Ohio State University, 1975
M.S., Aeronautical and
Astronautical Engineering,
Ohio State University, 1982

"The space program pays another dividend and that is the stimulus it gives to our young people to study science and engineering and to work toward proficiency and excellence at all levels of their education... The fact that our country is willing to take on difficult things, projects that are indeed wondrous and exciting, stimulates our young people to set their sights and their goals high—to pursue excellence..."

From an address by
NASA Administrator
James M. Beggs

hirling storms of Jupiter as photographed by
er 2 from 6 million kilometers.

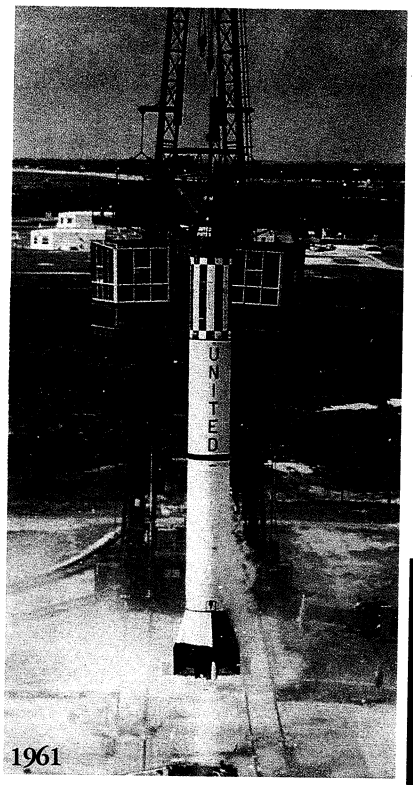
A Tradition of Triumph

"The Congress hereby declares that it is the policy of the United States that activities in space should be devoted to peaceful purposes for the benefit of all mankind."
National Aeronautics and Space Act of 1958

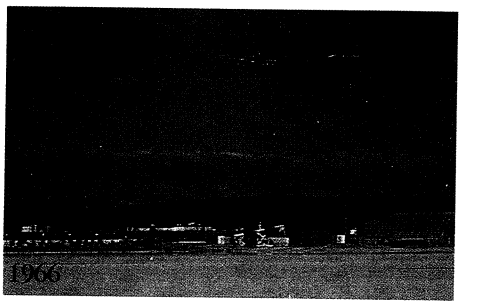
In 1957 the Soviet Union shook the world with the launching of Sputnik I, the first man-made satellite.

News of the Soviet feat sent shockwaves through America. If the United States were, indeed, to be a contender in the "space race," a bold, new organization was urgently needed to focus our efforts. Thus, the National Aeronautics and Space Act of 1958 was passed and the National Aeronautics and Space Administration (NASA) was born to unite the fragmented pieces of America's space program. And within a few short years, the United States was catapulted from underdog to world leader.

Below are a few of the highlights of NASA's outstanding accomplishments over the past quarter century.



1961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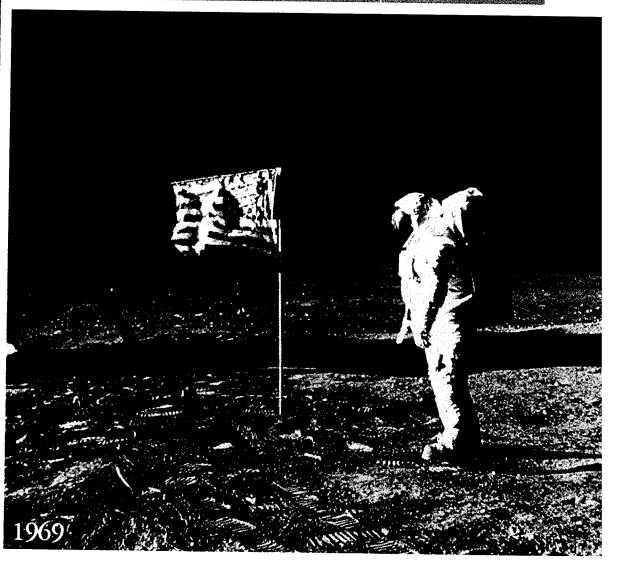
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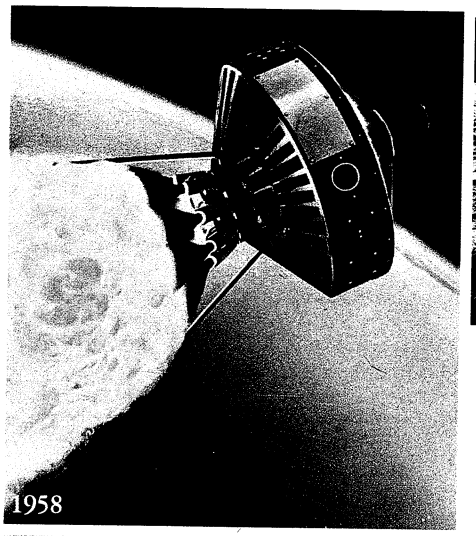
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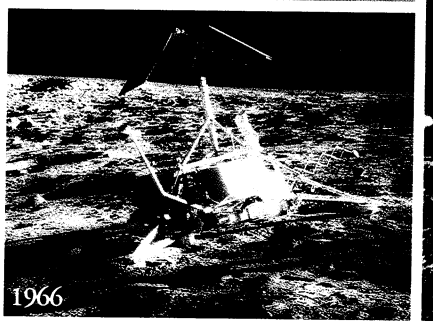
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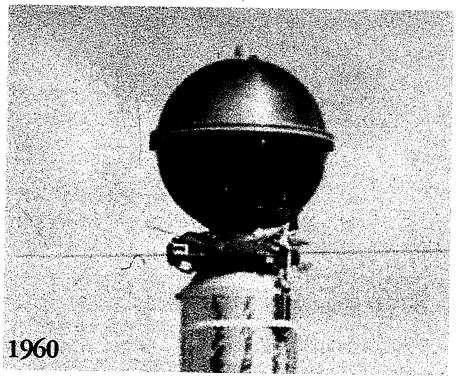

1960

1958 Pioneer I, NASA's first spacecraft, climbed to a record altitude of more than 70,000 miles.

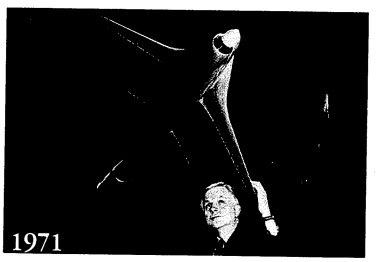
1960 Echo I became the first of two balloon satellites to experiment with reflecting radio signals to relay communications between two points on earth.

1961 Alan B. Shephard became the first American astronaut making an historic 15½ minute suborbital flight in the Freedom 7 capsule.

1966 Surveyor I, the first U.S. spacecraft to land on another celestial body, sent back extraordinary photos and scientific data about the moon's surface.

1966 NASA began a six-year research program on wingless "lifting body" vehicles that provided crucial data for the design of hypersonic aircraft and earth re-entering spacecraft.

1969 American astronauts Edwin E. Aldrin and Neil A. Armstrong became the first men to walk on the moon, representing a monumental moment in the history of our country.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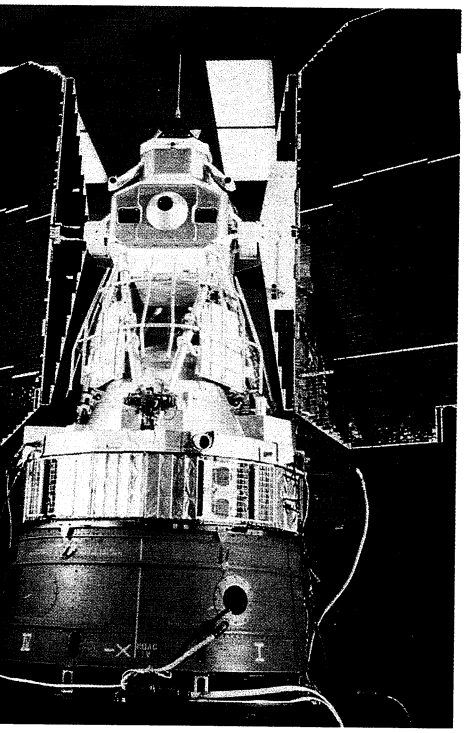
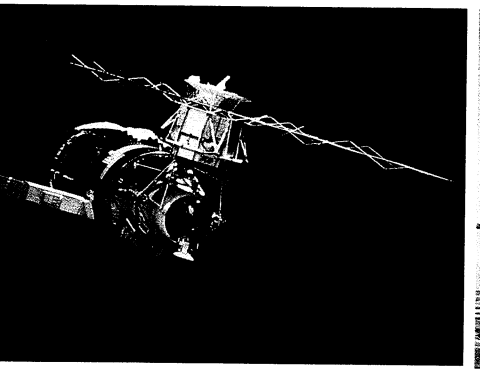
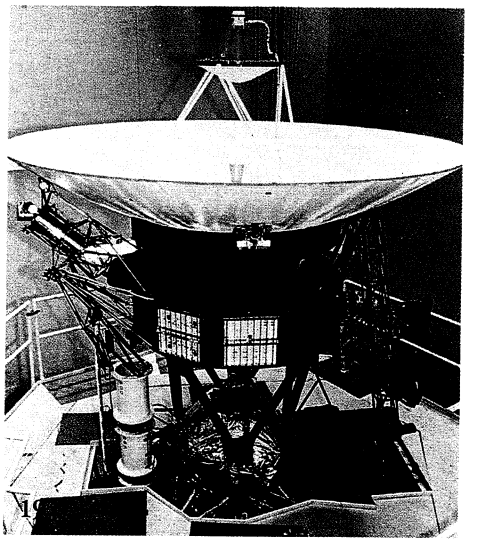
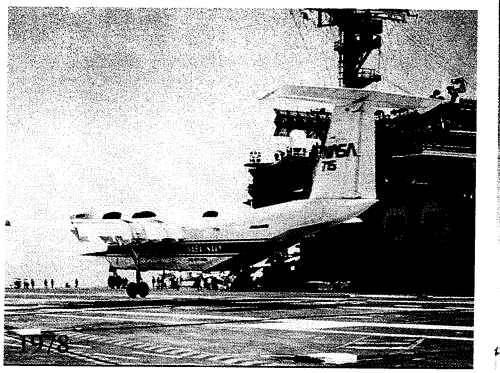




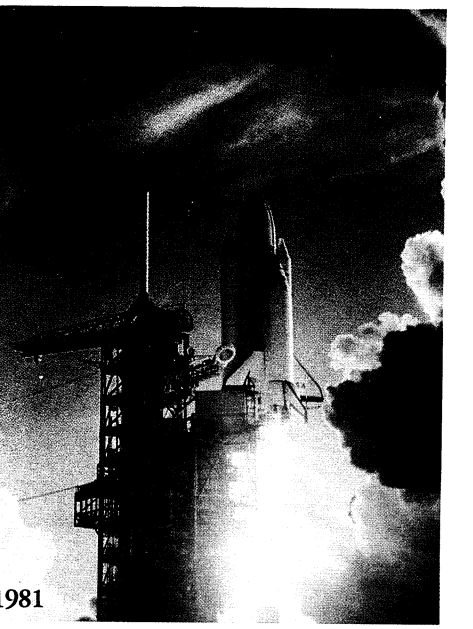




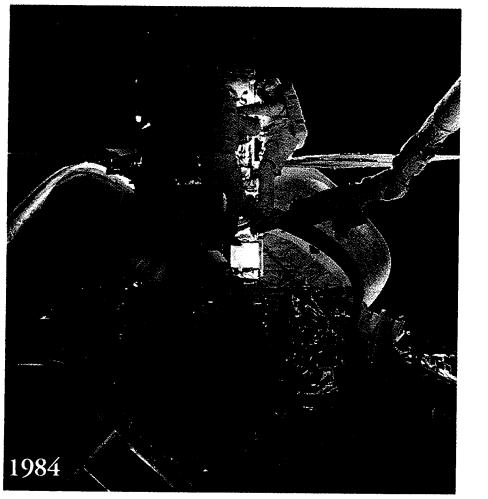
1978

"In my 22 years at NASA I've never had a day that wasn't exciting or in some way inspirational. I get great satisfaction in knowing my work is of vital importance to our country...and the world. NASA's standards for achievement are very high. We seem to only understand success. An environment with such strong emphasis on perfection can be extremely challenging, motivating and rewarding to a young scientist or engineer."

Robert Freitag
Space Station Program Office
NASA employee for 22 years



1981



1984

1971 Dr. Richard T. Whitcomb and his associates at Langley Research Center developed a new family of supercritical wings—advanced airfoil designs—that enabled planes to fly faster and further with greater fuel efficiency.

1972 Landsat I became the first of four earth resources survey satellites launched from 1972-1982 to monitor changing conditions on the earth's surface.

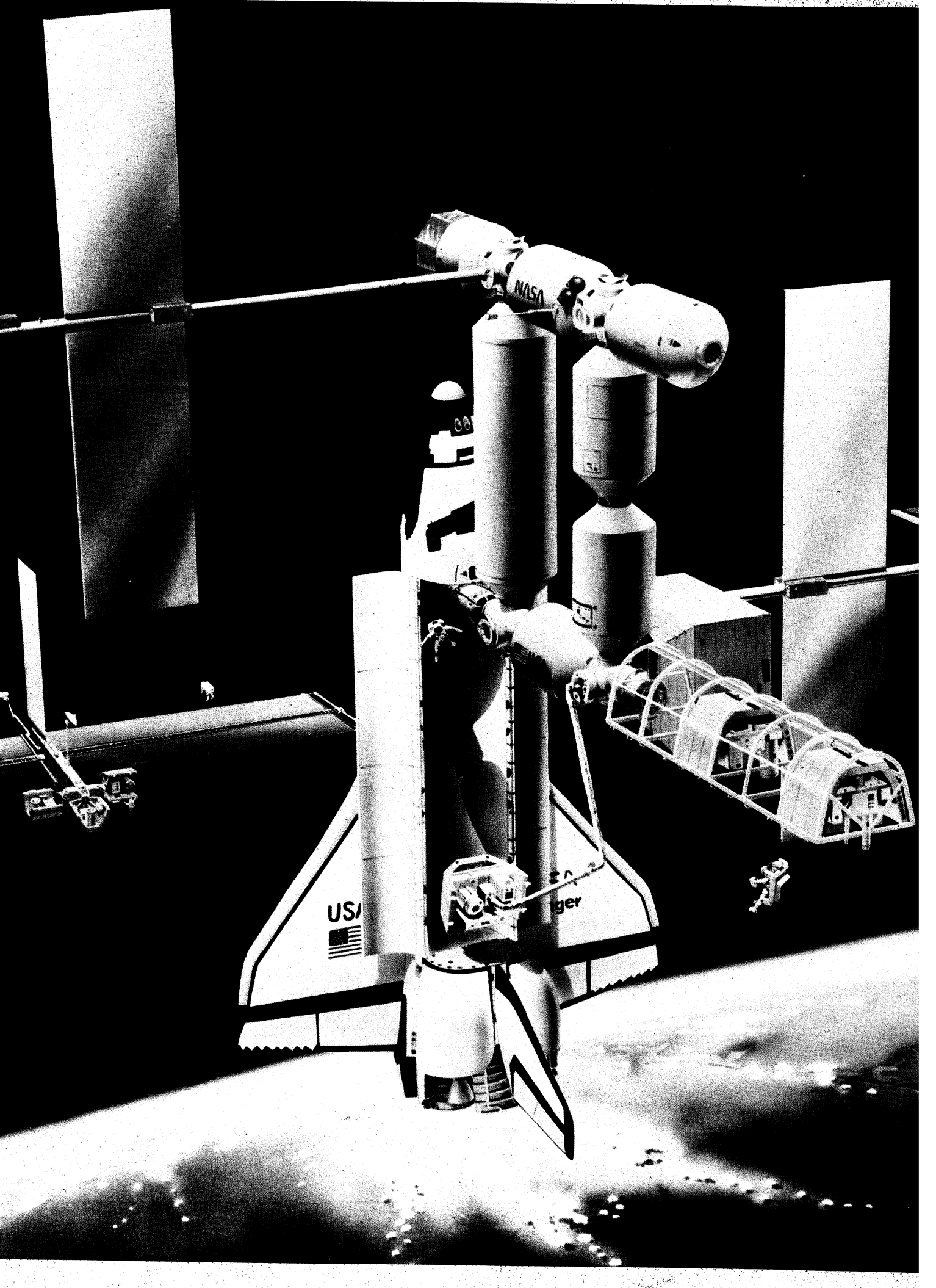
1973 Skylab, an interim manned space station, was launched containing the most powerful telescope ever orbited, a furnace for experiments in space materials processing and a variety of state-of-the-art scientific instruments.

1977 Voyagers 1 and 2 embarked on their grand tours of the solar system and began sending back countless photos and invaluable data about Jupiter and Saturn.

1978 Flight testing began on Quiet Short-haul Research Aircraft (QSRA), designed to alleviate airport congestion and aircraft noise.

1981 The Space Shuttle Columbia lifted off on its maiden voyage, ushering in a new era of reuseable aircraft.

1984 The repair of the Solar Max Satellite marked the first time in history that a satellite was captured in space, repaired and placed back in orbit.


NASA

The Challenge Ahead

U.S. and Dutch technicians prepare the Infrared Astronomical Satellite (IRAS) for launch at Vandenberg Air Force Base in California.

"But I also believe that there are moments in history when challenges occur of such a compelling nature that to miss them is to miss the whole meaning of an epoch. Space is such a challenge."
James A. Michener

Judging from NASA's past achievements, our next quarter century will open up spectacular new vistas in knowledge, technology and planetary exploration. We may discover new forms of energy; new methods of transportation; new information about our planet, the solar system, the galaxies and the universe—and possibly even new life forms.

Now that the Space Shuttle has reached its operational phase, we're quickly advancing into the "Space Station Era." Targeted for deployment in 1991, the U.S. Space Station will be the first permanent manned presence in space—and will spearhead a wealth of thrilling new research possibilities not available on earth. Launched and tended by the Space Shuttle, this $8 billion, multi-purpose modular facility will orbit the earth with a crew of up to eight people. The crew will engage in a variety of activities, including the servicing of satellites and other large structures in space, investigating the inspace manufacturing of pharmaceuticals and other critical materials, and studying ways to maximize human productivity in space.

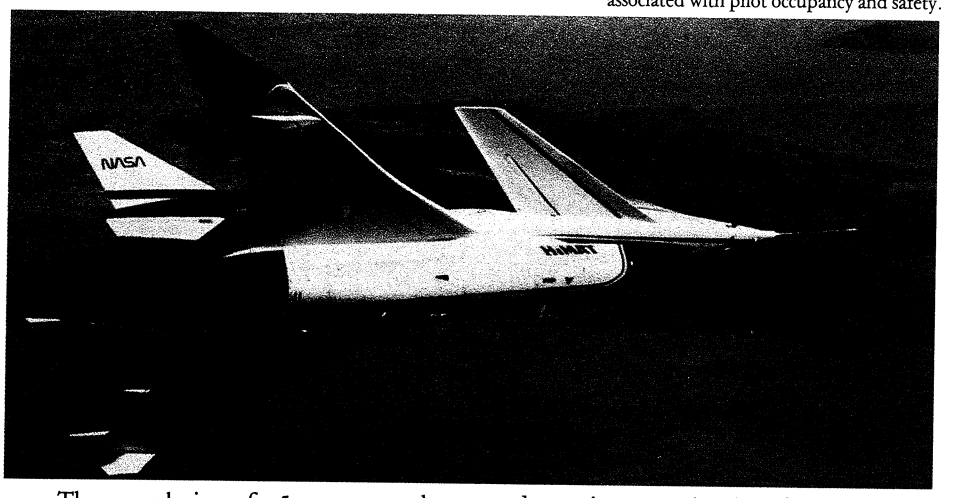
At NASA, we will continue to do in the future what we have done in the past—daring what others only dream. By joining us now, you could be a vital part of the tremendous challenges waiting ahead.

"NASA represents to me a unique kind of 'entrepreneur' in its pioneering research and breakthroughs to new frontiers. It's great to be a vital part of NASA's accomplishments."
Pearl Cheng
B.S., Biomedical Engineering, University of Iowa, 1981
M.S., Mechanical Engineering, Stanford University, 1982

rtist's conception of the future U.S. Space Station
rbits the earth.

NASA: The Inside Story

Test aircraft in the HiMAT (Highly Maneuverable Aircraft Technology) Program are dropped from B-52 carrier planes, then operated by a ground-based pilot. This concept, designed by NASA, permits high risk testing without risk to human life or the high costs associated with pilot occupancy and safety.



How does the world leader in space technology and aeronautical research operate?

Our 22,000 employees work at eight Centers located throughout the country, as well as at NASA Headquarters in downtown Washington, D.C. While each Center has its unique functions and facilities, most NASA activities involve collaborations between two or more Centers. NASA's partners in progress encompass thousands of "outsiders" as well, including members of the academic community, industrial leaders, and a number of other government agencies in the United States and abroad.

There are four major program areas at NASA: Aeronautics and Space Technology, Space Science and Applications, Space Flight, and Space Tracking and Data Systems. Each of these areas work independently, as well as collectively, to preserve our country's leadership in aeronautics and space science...and to pursue all the practical benefits that advancements in these areas have to offer. Looking back over our achievements, many can be attributed to the "team spirit" that has united researchers from all our diverse, yet interconnected, disciplines.

You're about to read a brief explanation of NASA's major research activities. We hope this information will help you decide whether or not you would like to be a part of the NASA team.

Aeronautics and Space Technology

Our Office of Aeronautics and Space Technology develops advanced technology needed to aggressively pursue our national objectives in aeronautics and space. An additional priority is to identify and demonstrate how new aeronautic and space technologies can be put to immediate scientific, commercial and military use.

A major goal of our aeronautics engineers and scientists is to provide technological advances that lay the foundation for the development of the safest, most efficient air transportation system possible and, thus, ensure the continued preeminence of the U.S. aeronautics industry. Some recent advances we're particularly proud of, and which will spearhead new research efforts for years to come, are:

The completion of a 5-year research program in jet engine efficiency that has succeeded in demonstrating fuel savings of up to 18 percent—and reducing direct operating costs for future jet transport aircraft by 10 percent.

The development of advanced turboprop concepts that increase aircraft fuel efficiency while maintaining jet speeds, cabin comfort and low noise levels.

The development of the Numerical Aerodynamic Simulation System (NAS)—a vast, supercomputer-based computational network that will have a major impact on all phases of aeronautical development, including fluid dynamics research, aircraft configuration refinement and aerodynamic performance analysis.

Another aim of NASA's aeronautics program is to support the continued superiority of U.S. military aviation. Recent accomplishments in this area include:

The flight testing of the F-16 that has led to advanced digital and direct force control system technology for improved maneuverability and agility.

The design of supercritical variable-camber wings that can assume many different shapes for optimum performance.

New technology developed from the X-wing Rotor Program and the Tilt Rotor Program could lead to vertical takeoff and landing capabilities with the flight performance of fixed wing aircraft.

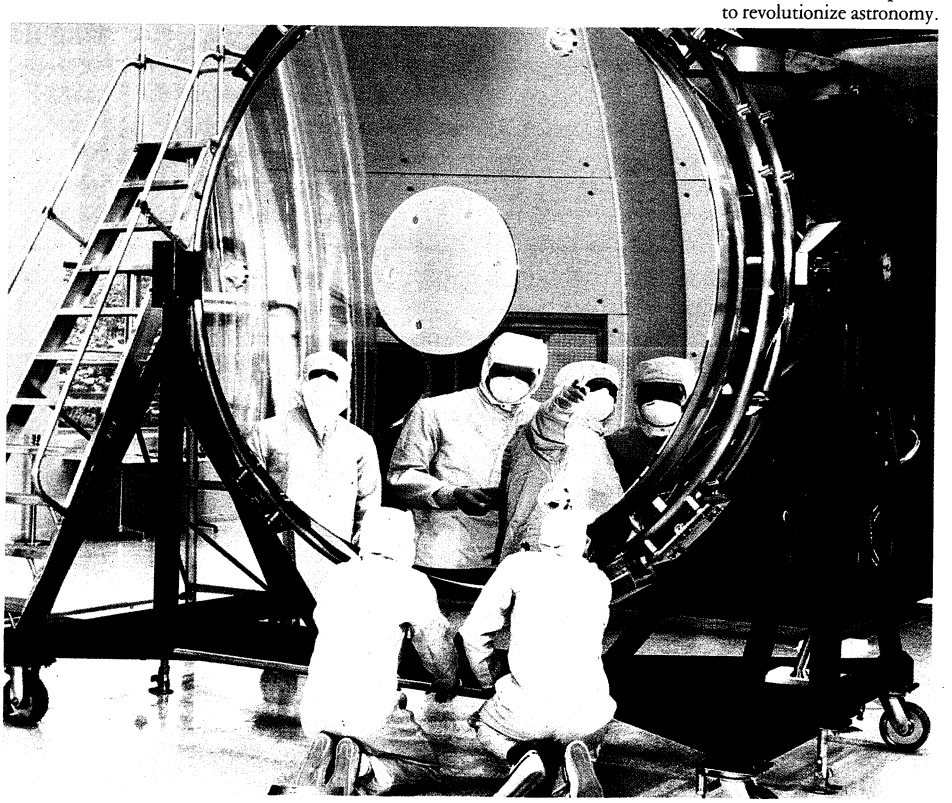
NASA's space research and technology base activities provide the fundamental information needed for planning future space missions and the exploration of our solar system. One of our latest breakthroughs in this area is the inspace Long Duration Exposure Facility (LDEF) that was deployed by the Space Shuttle in April 1984. It carried 50 experiments into space and will be brought back to earth in 1985 for analysis. Data derived from these experiments will document the effects of long-term space exposure on various materials and components.

If you're interested in applying your skills to our Aeronautics and Space Technology programs, you'll want to take a closer look at NASA's Ames, Langley, and Lewis Research Centers.

"NASA is an exciting place to work. Many of the world's most significant achievements in aeronautics were made right here. I've already been given a lot of responsibility on a high visibility project. I'm always included in the decision-making process—and my opinions play an important role. On top of that, I can take advantage of one of the best graduate school programs in the country."

Tom Davis
B.S., Aerospace Engineering, University of Cincinatti, 1983

A team of engineers inspects the reflective aluminum and magnesium fluoride coating on the Space Telescope's 94-inch primary mirror. NASA's Space Telescope, due to be launched in 1986, is expected to revolutionize astronomy.



Space Science and Applications

Through the diverse research programs of our Office of Space Science and Applications, we've greatly expanded our knowledge of the universe and the solar system; demonstrated the usefulness of space in observing earth's weather, oceans, and resources; promoted the development of our country's satellite communications industry; and developed technology to promote human productivity in space.

The Space Science and Applications Program is responsible for scientific research into the origin and evolution of the universe and for applying space systems and techniques to solve everyday problems on earth. The research includes observation of the distant universe, exploration of the near universe, and characterization of the earth and its environment. The applications work addresses the life sciences, improved satellite communications, the behavior of materials during processing in microgravity, and expands knowledge of earth and its environment.

The objectives of the Space Science and Applications Program are accomplished in the following major discipline areas: Astrophysics, Solar System Exploration, Earth Science and Applications, Life Sciences, Communications, and Microgravity Science and Applications. Development and integration of scientific payloads is conducted in our Shuttle Payload Engineering Division; and integrated data management is accomplished in the Information Systems Office. The possibilities for exciting and challenging work are practically unlimited.

Astrophysics

The Astrophysics Program is focused on the study of the distant universe and involves questions at the core of human concern. What is the size, scope, and structure of the universe? What is mankind's place in it? How did it begin? Is it unchanging or does it evolve, and will it end? What are the laws that govern celestial phenomena? Answers to such questions are sought by investigating the sun, stars, galaxies, gas, dust, and the laws of physics governing them.

The centerpiece of the Astrophysics Program is the 2.4-meter diameter Hubble Space Telescope to be launched in 1986 by the Space Shuttle. It is the most powerful astronomical telescope ever built. It will be a long-duration orbital facility serviced and updated as scientific priorities and instrument capabilities evolve. It is expected to revolutionize astronomy in a manner similar to the development of the first telescope by Galileo. Additional examples of the many challenging and exciting possibilities in astrophysics are the Infrared Astronomical Satellite (IRAS) which recently completed the first comprehensive all-sky survey in the infrared region of the spectrum; and the Solar Maximum Mission (SMM) which is making long-term comprehensive observations of the sun's flare activity. The recent Solar Maximum repair mission was a spectacular example of our capability to restore a spacecraft to fulfill its scientific goals.

Solar System Exploration

The objective of this program is to determine the origin, evolution, and present state of the solar system and to compare Earth with the other planets. United States leadership in the exploration of the solar system has brought new knowledge, prestige, and a sense of achievement to the nation. U.S. spacecraft were the first to visit Mercury, Venus and Mars and the highly sophisticated Viking spacecraft landed on Mars. Historic discoveries came from encounters

"As a NASA physicist, I believe my job here is much more interesting and challenging than a similar position would be in industry. NASA has offered me greater responsibility, freedom and a wider variety of educational and career opportunities."

Anne Arrison
B.S., Applied Engineering Physics, Cornell University, 1979
M.S., Applied Engineering Physics, Cornell University, 1981

with Jupiter and Saturn, and Voyager 2 is on a course to an encounter with Uranus in 1986 and Neptune in 1989. More than two dozen planets and satellites have been explored at close range and the interplanetary medium has been partially characterized. The current Solar System Exploration Program includes the continued exploration of the outer solar system with the Voyager encounters with Uranus (1986) and Neptune (1989), the Galileo Mission to Jupiter (launch in 1986), the Venus Radar Mapper Mission (launch in 1988), and the Mars Geoscience/Climatology Orbiter (launch in 1990). In addition, the program plan includes observations of Halley's Comet from Earth and Earth orbit in 1986.

Earth Science and Applications

NASA's program to study the Earth is global, with emphasis on understanding the processes that affect Earth's habitability. The Earth resources part of this program uses various remote sensing systems to collect data or research and demonstrates the usefulness of remote sensing in land-use analysis and planning, agriculture, hydrology, and geology. For example, Landsat 5, launched in March 1984 with a Thematic Mapper, is providing extremely valuable information. The atmospheric science part of the program endeavors to understand atmospheric processes and the resulting effects on climate, weather, and the Earth's environment. This involves the use of sounding rockets, balloons, aircraft, and free-flying satellites such as the Earth Radiation Budget Experiment, to be flown in 1984. Studies of the Earth through the 1990's will focus on trends and changes in the environment, and estimating the effects of humans and other species on Earth's biological productivity and habitability.

Life Sciences

The aims of the Life Sciences Program are to help establish a permanent human presence in space and to conduct a vigorous program of scientific research in space. This program has primary responsibility for ensuring the health and well-being of NASA's spaceflight crews and the increase of productivity in the space environment. It also seeks to advance knowledge of fundamental biological processes, concentrating on medical science and biological science.

Communications

The Communications Program is designed to develop high-risk electronics technology useful in multiple-frequency bands to satisfy the communications needs of NASA, other government agencies, and U.S. industry. Communications electronics, particularly communications satellites, have constituted a critical and fast-growing segment of the communications industry. NASA's Advanced Technology Satellite (ATS-6) provided the basis for today's new broadcast satellite service industry. NASA's Syncom Satellite, launched in 1962, was the precursor to Intelsat and the first generation of domestic fixed-satellite services. The Satellite-aided Search and Rescue Program will develop and demonstrate a system for detecting and locating aircraft, marine vessels, and individuals in distress. The Advanced Communications Technology Satellite will be a technology development program to validate the use of multiple fixed and scanning spot beams, frequency reuse, beam interconnectivity, advanced system network concepts, and dynamic rain-compensation techniques.

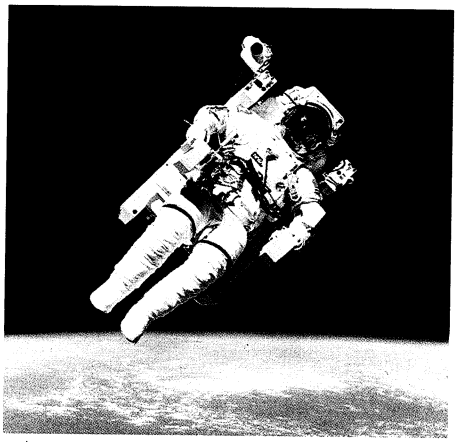
Microgravity Science and Applications

The aim of this program is to improve basic understanding of materials and their behavior in microgravity. The program concentrates on materials sciences, physics and chemistry, and biotechnology. Plans for the program include expansion of the research base established during the last several years and the conduct of flight investigations to delineate the potential and limitations of the microgravity environment for scientific and industrial use.

Scientists and engineers interested in the diverse activities of the Space Science and Applications Program should contact any one of the NASA Centers throughout the country for specific career information.

"I can't think of any career that offers as much intellectual stimulation, educational support and team spirit as a career at NASA does. There's a certain sense of esprit and fulfillment we experience working for an agency that is the focus for our country's entire space program."

Al Diaz
Office of Space Science and Applications
NASA employee for 20 years



Astronaut Bruce McCandless takes the first untethered walk in space with the nitrogen-propelled, hand-controlled manned maneuvering unit (MMU).

Space Flight

NASA's Space Flight Program is a highly visible symbol of America's leadership in aerospace science and technology.

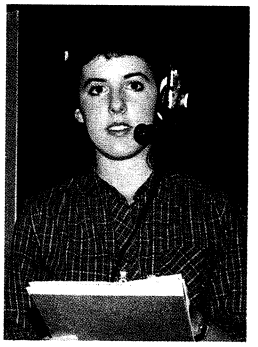
In the late 1970's our Space Flight scientists and engineers undertook the challenge of building a reuseable launch system that would take the "astronomical costs out of astronautics," and would give the country routine access to space. The 1981 debut of the National Space Transportation System, better known as the Space Shuttle, symbolized the largest and most complex technological project ever undertaken by our country during peacetime.

Now in its operational phase, the Space Shuttle carries satellites, experiments and flight crews into space for missions lasting up to a week. Our Space Flight scientists and engineers are currently demonstrating the versatility of the system by using the Shuttle as an in-orbit launch pad to boost communications satellites into higher orbits, to transport the Spacelab and its invaluable experiments, and to engage in dramatic rescues and repairs of disabled satellites, such as the Solar Maximum Satellite rescue in April 1984.

Engineers and scientists joining our Space Flight Program will continue to improve the efficiency and reliability of all phases of the Shuttle system from pre-launch through post-flight operations. They will also work to further develop the Shuttle's role in transporting the personnel and equipment necessary to build and maintain a permanent in-orbit Space Station.

As envisioned by NASA, the Space Station would not be a single facility but several, including a manned base with a crew of 8 persons, 2 or more unmanned platforms, and a large and small space transport vehicle to get to nearby satellites and to geostationary orbit and back.

To learn more about career opportunities in NASA's Space Flight Program, write to our Johnson, Kennedy or Marshall Space Centers.



"I've always been fascinated with the space program, so when I learned of the opportunity to join NASA and work at the Kennedy Space Center, I immediately jumped at it. What better time to come aboard than when space is finally being put to practical use by the first reuseable space vehicle, the Shuttle!"

Maynette Smith
B.S., Electrical Engineering,
Vanderbilt University, 1983

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COLOR PHOTOGRAPH

Space Tracking and Data Systems

Our Space Tracking and Data Systems Program provides vital tracking, command, telemetry and data acquisition support for earth-orbital science and applications missions, planetary missions, sounding rockets, balloons, research aircraft and all phases of the Space Shuttle program. Two worldwide tracking networks—one for deep space and another for earth-orbital missions—now provide this support, while a global communications system links tracking sites, control centers and data processing facilities.

Within the next few years we expect some dramatic changes to take place in the configuration of the Space Tracking and Data Systems Program. A major transition is already underway from the traditional Ground Network mode support for low earth-orbiting spacecraft...to the Space Network mode using the Tracking and Data Relay Satellite System (TDRSS).

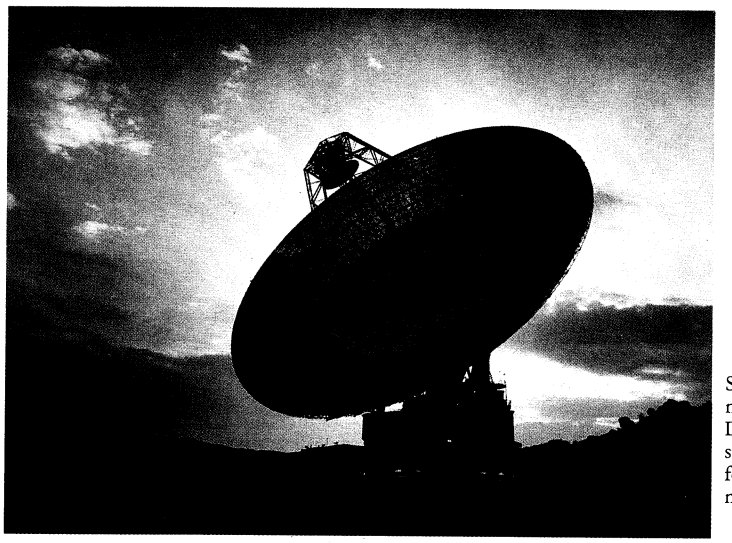
In 1985, NASA plans to launch two additional Tracking and Data Relay Satellites, making many existing ground stations obsolete. Those stations that remain will be consolidated with the Deep Space Network or dedicated to launch and landing support. This consolidation will result in a single Ground Network to support all deep space probes, planetary missions, spacecraft not compatible with the TDRSS, and emergency support for spacecraft such as the Space Shuttle. At the same time, a number of upgrades in the Deep Space Network will provide increased support to spacecraft exploring distant planets.

Researchers joining our Space Tracking and Data Systems team in the near future will most likely be involved with Voyager 2's encounter—some 2.9 billion kilometers from Earth—with Uranus in 1986.

If NASA's Space Tracking and Data Systems interest you, contact Goddard Space Flight Center for more information about current career opportunities.

"Working at NASA has given me a planetary view of the Earth. It's like being an explorer on a 14th century ship about to set sail for the New World. Right now, I'm looking forward to the photos Voyager will be sending back from Uranus. There's nothing like being among the first to see what no man has ever set eyes on before!"

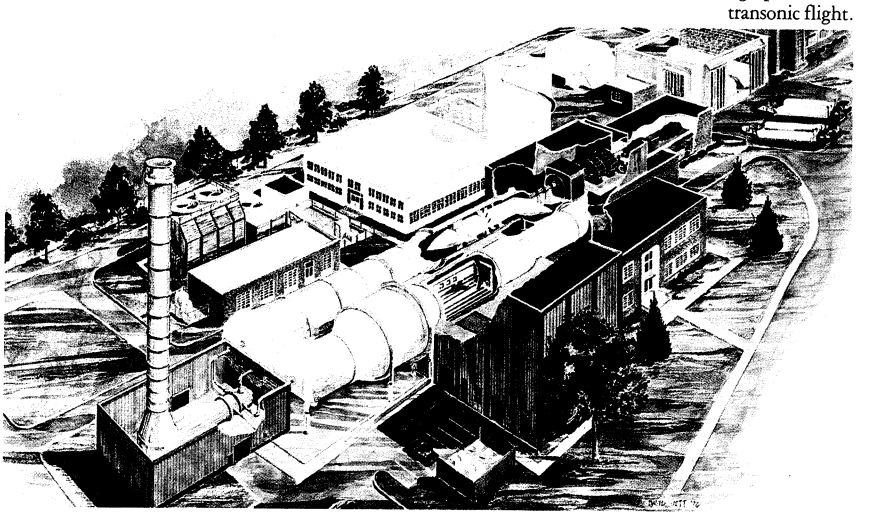
Robert Hornstein
Office of Space Tracking
and Data Systems
NASA employee for 17 years



Scanning the skies near Madrid, Spain, the DSS-63 communications station provides support for NASA's deep space missions.

The State of the Art Starts Here

This artist's conception of the National Transonic Facility at NASA's Langley Research Center shows a cutaway view of the $85 million cryogenic wind tunnel used to test aircraft in the high pressures of transonic flight.



Whatever your area of expertise—aerodynamics, propulsion, structures and materials, life sciences, computer sciences or electronics—at NASA, you'll be using and creating some of the most unique and sophisticated facilities in the world.

Our research facilities range from a test cell the size of an ordinary room in the Engine Research Building at Lewis Research Center...to the largest wind tunnel in the world, an enormous 40 x 120-ft. facility which covers two city blocks at our Ames Research Center. You'll discover exceptional facilities at every one of our Centers—and new facilities are always being added. A next-generation CRAY-2 supercomputer is already on order, with installation at our Ames Research Center scheduled for the fall of 1985. In fact, in your career with NASA you'll no doubt help to design and develop new state-of-the-art facilities and systems—research systems so new they don't yet exist in anyone's mind.

Here is a sampling of some of our most impressive facilities:

The National Transonic Facility (NTF) at the Langley Research Center. This unique national laboratory tests high performance aircraft designs and provides researchers with an unparalleled capability for investigating high Reynolds number effects. Actual flight conditions in the critical transonic speed regime are simulated by employing a cryogenic air flow at temperatures as low as $-320°$F.

The 10 x 10-ft. Supersonic Propulsion Wind Tunnel at the Lewis Research Center. One of the most advanced propulsion facilities in the nation, this unusual wind tunnel is an invaluable tool to engineers who use state-of-the-art models, airframes, inlets and nozzles to test the Space Shuttle and other aircraft.

The Advanced Concept Simulator at Ames Research Center. This mock aircraft cockpit uses advanced computational, electrical and mechanical engineering concepts. The control system, which is microprocessor-based, automatically controls planes in approaches, cruising and landing—and reacts directly to a pilot's voice command, touch panel or computer keyboard.

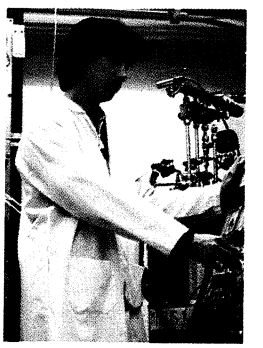
's Ames Research Center, a pioneer in
utational fluid dynamics, utilizes a CRAY X-MP
omputer. Installation of a CRAY-2 super-
uter is scheduled for the fall of 1985.

The X-Ray Telescope Calibration and Test Facility at Marshall Space Flight Center. The testing of all focusing-type instruments used on the Space Shuttle is conducted here. This facility is also capable of simulating radiation from sources at infinite distances.

The Life Sciences Laboratories at the Johnson Space Center. These laboratories contain clean areas, test equipment and specialized tools and materials to design, develop and test life support systems such as the astronauts' space suits, backpacks and survival equipment. Additional chambers are used to analyze spacecraft atmospheres and to conduct biomedical research to evaluate human response to short and long-term space environment exposure.

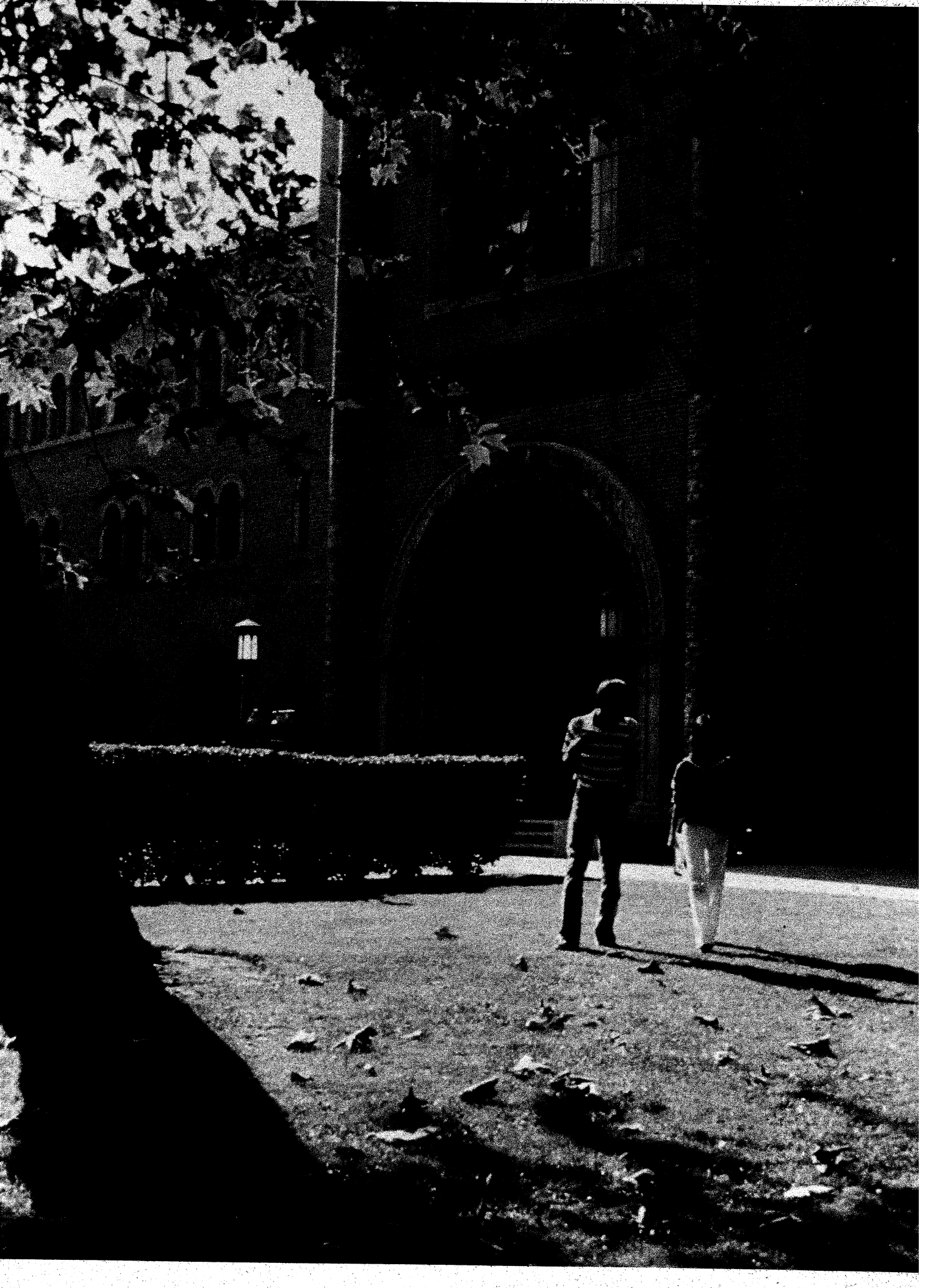
The Vehicle Assembly Building at Kennedy Space Center. Over 525-feet tall, this building was formerly used for the assembly of Saturn V launch vehicles and has been modified to accommodate the Space Shuttle. So huge that rain can fall within its walls, the VAB is used for the assembly, integration, checkout, launch processing and control of the Shuttle's orbiter, external tank and solid rocket boosters.

The CRAY X-MP Supercomputer at Ames Research Center. The CRAY X-MP dual processor supercomputer, currently the top of the Cray Research line, can perform up to 420 million floating point operations per second in vector mode. Ames, a pioneer in computational fluid dynamics, is also scheduled to lease one of the next-generation CRAY-2 supercomputers for use in its numerical aerodynamic simulator. In addition, our Lewis Research Center also utilizes a CRAY-1 supercomputer and our Goddard Space Flight Center is currently evaluating an ultra high speed, massively parallel processor designed to perform 6.5 billion add-subtract operations per second, or 1.8 billion multiplications per second. This amazingly fast computer was developed primarily for analyzing imagery, such as that obtained from Landsat Spacecraft, but Goddard scientists will explore other applications as well.



"What I like most about my job at NASA is that it is research-oriented, but also addresses problems of a practical nature. I'm encouraged to be imaginative and creative in my work, and I have access to all the state-of-the-art facilities and resources I need to accomplish my goals. NASA also offers a learning environment not usually found in private industry—plus excellent advanced educational benefits."

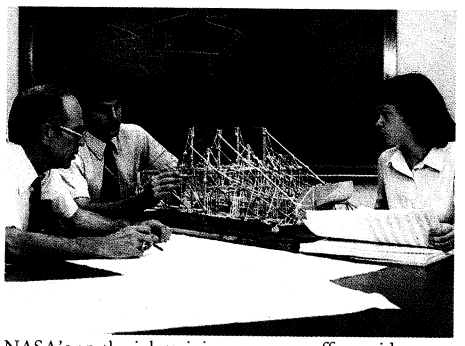
Jeffrey Lee
B.S., Chemical Engineering, UCLA, 1981
M.S., Chemical Engineering, UCLA, 1983



You'll Always Be Learning at NASA

"The great thing in this world is not so much where we stand, as in what direction we are moving."
Oliver Wendell Holmes

NASA's phenomenal record of achievements is the result of the technical competence of our employees. At NASA, you'll be working alongside some of the nation's most accomplished scientists and engineers. There's no doubt that your on-the-job training will present you with a wide variety of challenges and opportunities. But on-the-job training is not enough. At NASA, you'll be expected to keep abreast of up-to-the-minute breakthroughs and to continually develop career enhancing skills. Graduate study is encouraged and our Centers offer attractive tuition reimbursement programs to help you pursue master's and doctoral studies. Besides tuition assistance, you may also be permitted to attend classes during the work day at a nearby university. In addition, many Centers offer academic courses right on site, taught by professors from neighboring institutions. We also offer a variety of internal education programs, conferences and symposia.



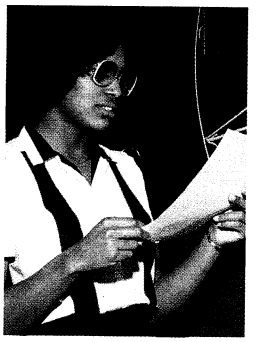
NASA's on-the-job training programs offer a wide scope of challenges and opportunities.

Set Your Sights High

By joining the NASA team, you'll be embarking on a challenging and rewarding career path with unlimited growth potential. Depending on your interests, performance, motivation and qualifications, you can advance in scientific and engineering specializations...or change paths and advance into managerial and supervisory positions.

Either way, your opportunity to grow and learn will continue. The NASA Management Education Program (MEP) is a unique, intense and broad developmental experience for NASA mid-level managers. For mid-level professionals, NASA also offers a Career Development Program (CDP) which will provide developmental work assignments at Headquarters or at a Center different from your "home" Center. The Critical Assignment Development Program (CADP) is another program which allows highly specialized employees to broaden their area of expertise through inter-agency, and even congressional, assignments and exposure.

Later on in your career there will be opportunities for NASA-sponsored fellowships at such institutions as Harvard, MIT, Stanford or Simmons.



"Thanks to NASA's generous tuition assistance program, I'm pursuing my master's degree while actively applying my aerospace engineering skills on the job. Another great thing about NASA is the team spirit among my fellow workers, plus the wide assortment of employee clubs and activities to choose from."
Dovie Lacey
B.S., Mechanical Engineering, Southern University, 1982

A strong sense of teamwork is shared by our scientists and engineers.

A maintains strong ties to many prestigious univer-
and all of our Centers offer tuition reimbursement
ams to encourage the pursuit of advanced degrees.

Additional Benefits of Working for the World Leader

You'll work hard at NASA and you'll be paid well. As an engineer or scientist working for NASA, you'll be offered an attractive package of compensation and benefits, including comprehensive medical and life insurance plans, paid vacations and sick leave, and one of the best retirement plans available anywhere. In addition to enjoying nine annual holidays, you'll also be entitled to 13 days of vacation during your first three years, with substantial additional vacation time accruing as your years with NASA grow.

Your opportunities for annual salary increases will be based entirely on your on-the-job performance. You'll also take an active role in planning your work assignments and identifying your training needs. All NASA employees participate in their own yearly performance appraisal and have frequent performance review discussions with their supervisor.

In addition to your salary, NASA offers an incentive awards program to encourage your high productivity and superior performance. These awards may take the form of special salary increases or cash awards.

It's Not All Work

NASA employees enjoy more than just an outstanding benefits program. Most Centers occupy an attractive campus-like setting and have active employee clubs ranging from sports teams to computer clubs. Employee clubs often provide low cost travel arrangements and discount tickets to nearby attractions. In addition, the NASA Federal Credit Union offers a complete line of savings and loan services with very attractive interest rates to help you purchase that new car or recreational vehicle. There are cafeterias, jogging trails and physical fitness facilities, all for the enjoyment of NASA employees.

We'll Help You Move

If you're selected for a professional engineering or scientific position, in most instances NASA will help pay for your transportation and for moving your household goods and personal belongings. If you have a family, we'll also pay for their transportation to your new home.

"I chose a career at NASA because of its prominence and contributions to the world, its diverse work assignments, its opportunities for advancement and personal growth, its concern for its employees, as well as its liberal fringe benefits and job security."

Arthur J. Henderson, Jr.
B.A., Mathematics,
Alabama A & M University, 1982

"I'm working with an excellent group of co-workers in a highly challenging atmosphere. This makes my job both enjoyable and rewarding. At the same time, I'm earning a competitive salary and taking advantage of NASA's outstanding graduate education program."

Bradford H. Parker
B.S., Mechanical Engineering,
Virginia Polytechnic Institute, 1982

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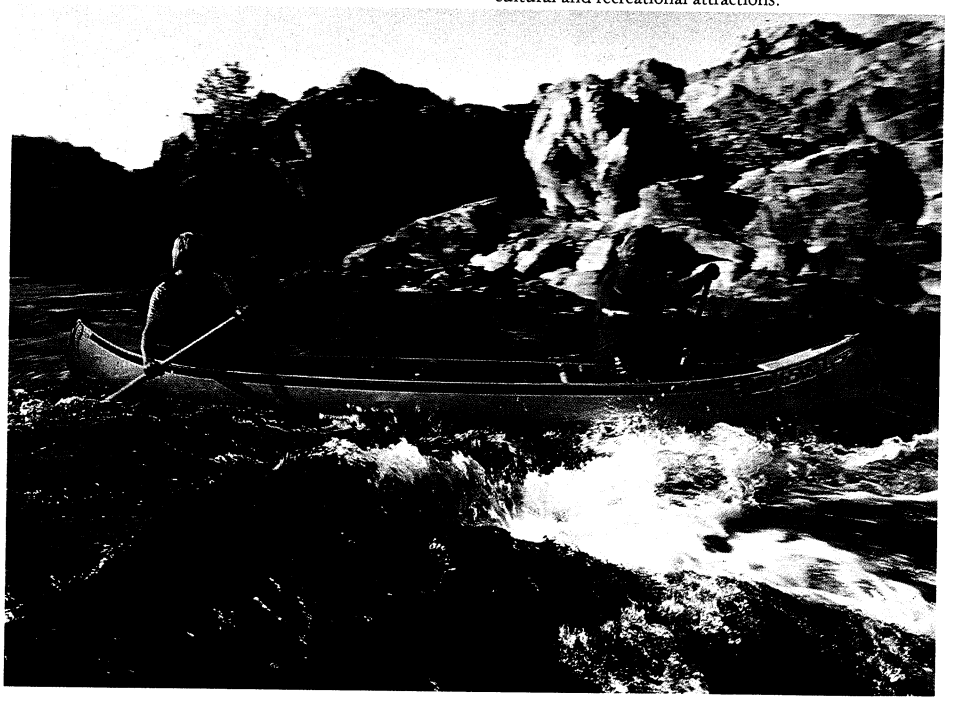
Each of our Centers offers a unique combination of cultural and recreational attractions.



Which NASA Center Is Right for You?

If a NASA career sounds appealing to you, it's time to start considering which of our Centers is best suited to your professional goals and geographic preferences.

Located throughout the country, our eight Centers offer a unique combination of lifestyle and employment opportunities.

While we only have room for a brief profile of each of the Centers, more detailed information is available by writing the Personnel Office at the Centers that most interest you.

Ames Research Center, Moffett Field, California 94035. Established in 1940 as a major aeronautical research laboratory, Ames operates at two locations. The Ames North location is at the southern end of San Francisco Bay, approximately 40 miles south of San Francisco. The Ames Dryden Flight Research Facility is located at Edwards Air Force Base, 65 miles northeast of Los Angeles. Ames conducts basic and applied research in physical and life science areas of vital importance to the advancement of aeronautics and space technology for the nation. The Center's major program responsibilities are concentrated in fundamental aerodynamics, computational fluid dynamics, powered-lift and rotorcraft technology, flight simulation, aeronautical and space human factors, airborne science and applications, space sciences and life sciences. The Ames Dryden Flight Research Facility provides flight services and facilities for NASA-wide flight research supporting aeronautics and space technology. Located at Ames is NASA's largest scientific computing facility, as well as the world's highest fidelity flight simulators. Ames also has major aerodynamic and aerothermodynamic facilities, including the world's largest wind tunnel.

"At NASA, recent college graduates can get immediate *experience and responsibilities on highly visible projects of world importance. From what I've observed about private industry, you usually have to be much farther along in your career to work on projects of such magnitude."*

Harry Clark
Office of Space Flight
NASA employee for 20 years

Goddard Space Flight Center, Greenbelt, Maryland 20771. Goddard's primary responsibilities center on the development and monitoring of a worldwide tracking and communications network and the conduct of remotely controlled, earth-orbiting and sounding rocket missions. The data acquired has resulted in major advances in weather and climate research, earth resources, astronomy and communications. In addition, Goddard is equipped with some of the finest facilities in the nation for the design, fabrication and testing of the latest space science and application satellites and instruments.

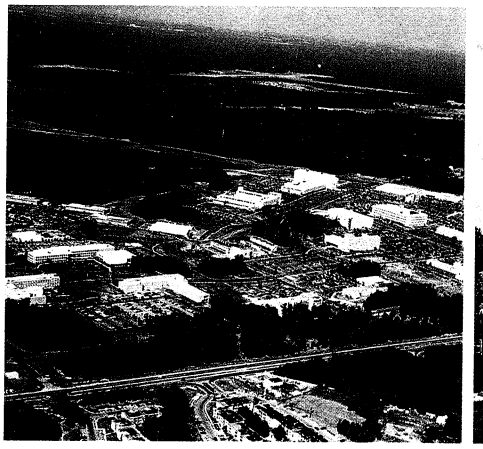
In the future, scientists and engineers at Goddard will play an active role in the development of the Space Station program. Their responsibilities will encompass the design of automated, free-flying platforms, instruments and payloads to be externally attached to the pressurized section of the Space Station, as well as pressurized laboratory modules.

Located less than an hour outside of Washington, D.C., Goddard's employees are able to take advantage of all the historic sights and cultural and recreational activities available in our nation's capital.

Johnson Space Center, Houston, Texas 77058. Our primary Center for the operation of the Space Shuttle and our lead Center for the entire Space Station Program, JSC is located just outside Houston—the fastest growing city in the United States. JSC is responsible for the development, production and flight operation of the orbiter vehicle—that portion of the Space Shuttle designed to take crews and experiments into space, place satellites into orbit and retrieve ailing satellites.

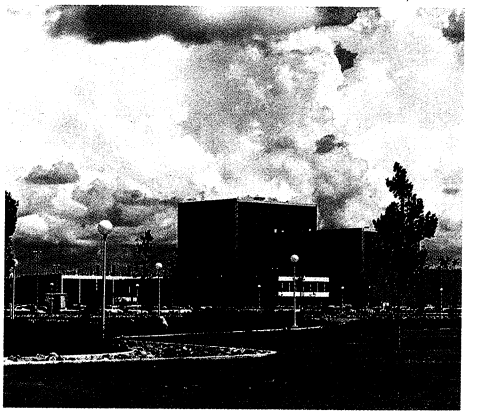
Among JSC's other key functions are the selection and training of the astronauts, the design and development of flight payloads and new systems for manned space missions, plus the design of many of the medical, engineering and scientific experiments carried aboard space flights. As our main Center for Space Station development, JSC will be responsible for overall systems engineering and operations, as well as the design of the interfaces between the Space Station and the Space Shuttle.

Kennedy Space Center, Kennedy Space Center, Florida 32899. Known as "America's Spaceport," the Kennedy Space Center is located on the east coast of Florida, 50 miles from Orlando. Our major launch facility for the Space Shuttle and unmanned space missions, the Kennedy Space Center also plans and directs preflight preparation of space



The Goddard Space Flight Center is located on an expansive 554-acre site in Greenbelt, Maryland, outside of Washington, D.C.

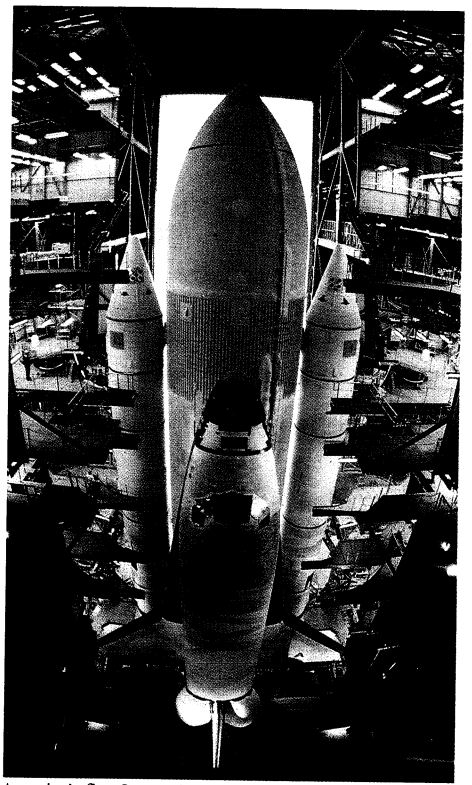
The campus-like grounds of NASA's Johnson Space Center in Houston, Texas.



vehicles and their cargoes; the assembly of space vehicles; the testing of launch vehicles, spacecraft, support systems and facilities; the coordination and tracking of data acquisition requirements; countdown and launch operations; landing operations and refurbishment of the Space Shuttle for future missions; and the design and development of launch facilities and ground support equipment.

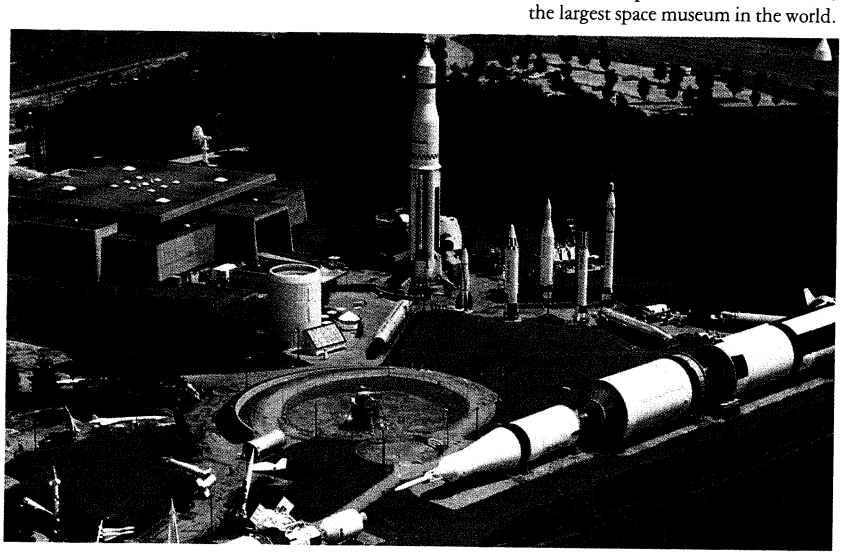
In the years ahead, scientists and engineers at the Kennedy Space Center will be responsible for the preflight and launch operations of the U.S. Space Station and will also be involved in all phases of its logistic support activities.

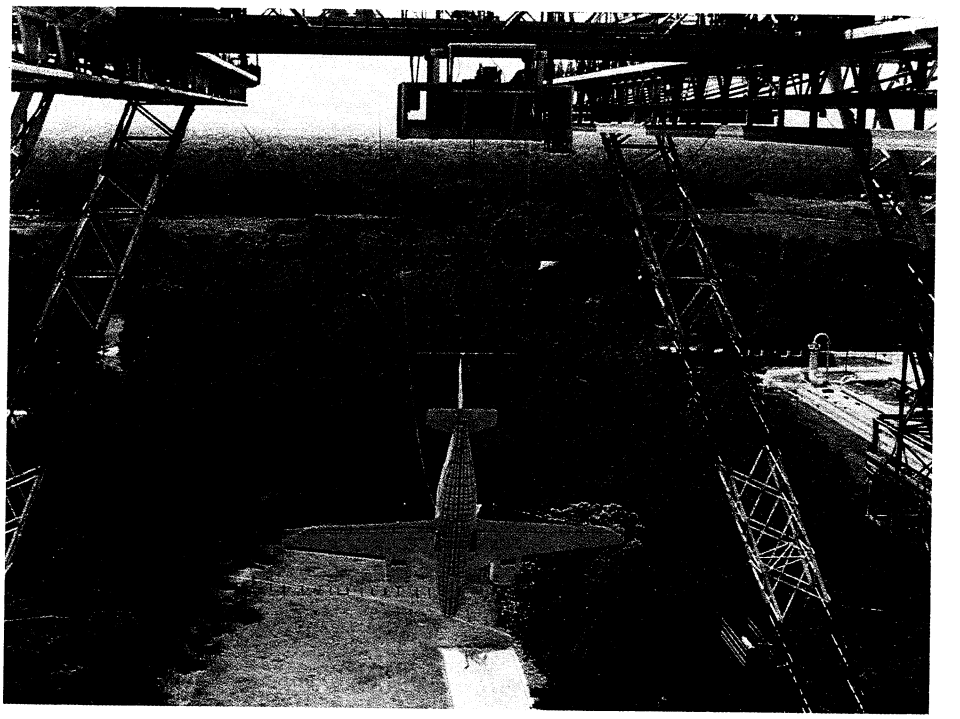
Langley Research Center, Hampton, Virginia 23665. Situated in the historic and scenic Tidewater region of Virginia, Langley was established in 1917 as the first federal aeronautical laboratory. The Center possesses one of the most extensive collections of aeronautical research facilities in the world—including more than 50 wind tunnels. Langley is known for its airfoil research, major design advances on the new Boeing 757 and 767 transports, the creation of spin avoidance and auto



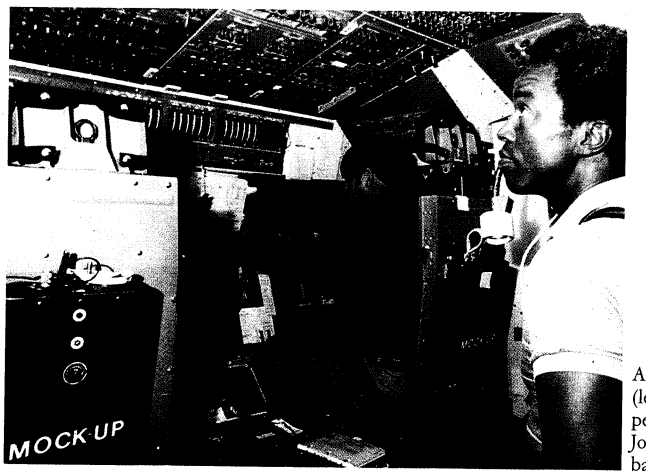
America's first Space Shuttle, Columbia, is shown ready to be rolled out of the Vehicle Assembly Building at the Kennedy Space Center in Florida.

Adjacent to the Marshall Space Flight Center in Huntsville, The Alabama Space and Rocket Center is the largest space museum in the world.





At this unique facility at the Langley Research Center in Hampton, Virginia, NASA crashes full size aircraft as part of a program to improve the crashworthiness of aircraft structures.



Astronauts Daniel Brandenstein (left) and Guion Bluford (right) perform a mock mission in the Johnson Space Center's motion-based simulator.

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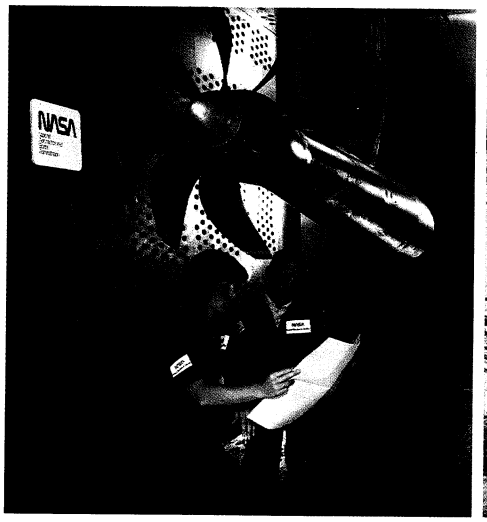
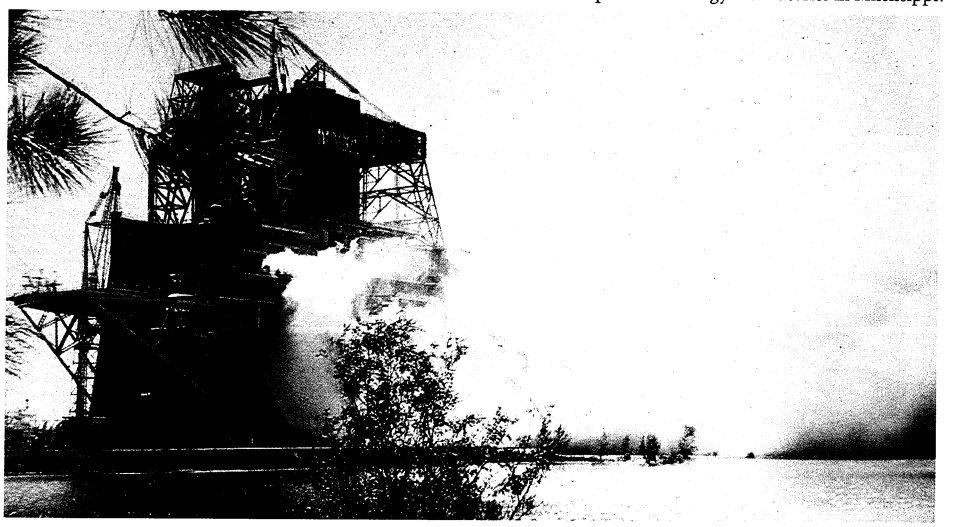
High speed propeller testing in the 8 x 6-ft. transonic/ supersonic wind tunnel at the Lewis Research Center.



A Space Shuttle engine undergoes testing at the National Space Technology Laboratories in Mississippi.



control techniques in high performance military fighters, transonic wind tunnel testing, and the development of vast integrated software systems for aerospace engineering and design.

Lewis Research Center, Cleveland, Ohio 44135. Our midwest Center plays a critical role in conceiving and directing the nation's aerospace propulsion and power programs. A large percentage of the Lewis Research Center's efforts are devoted to the development of more efficient engine systems. Over the years, Lewis has developed an international reputation for its research on jet propulsion systems, and all of the U.S. engines flying today carry the mark of NASA's Lewis Research Center technology. In addition, Lewis is actively engaged in energy conservation research and technology for communications satellites. The largest launch vehicle used in the space program, the Atlas Centaur, is also managed at Lewis.

As the U.S. Space Station becomes a reality, scientists and engineers at Lewis Research Center will be responsible for developing its electrical power generation, conditioning and storage systems.

Marshall Space Flight Center, Huntsville, Alabama 35812. Surrounded by the rivers and mountains of the Tennessee Valley, Marshall is our primary Center for the design and development of the space transportation system. In addition, it is the principal Center for rocket propulsion systems. Engineers and scientists at Marshall have been involved in the exciting development of such manned vehicle systems as the Lunar Roving Vehicle and Skylab and are now actively involved in managing the Spacelab program.

In coming years, scientists and engineers at Marshall will play a key role in developing the U.S. Space Station's pressurized modules, environmental controls and propulsive systems, and the design of an orbital maneuvering vehicle that will travel between the Space Station and other spacecraft.

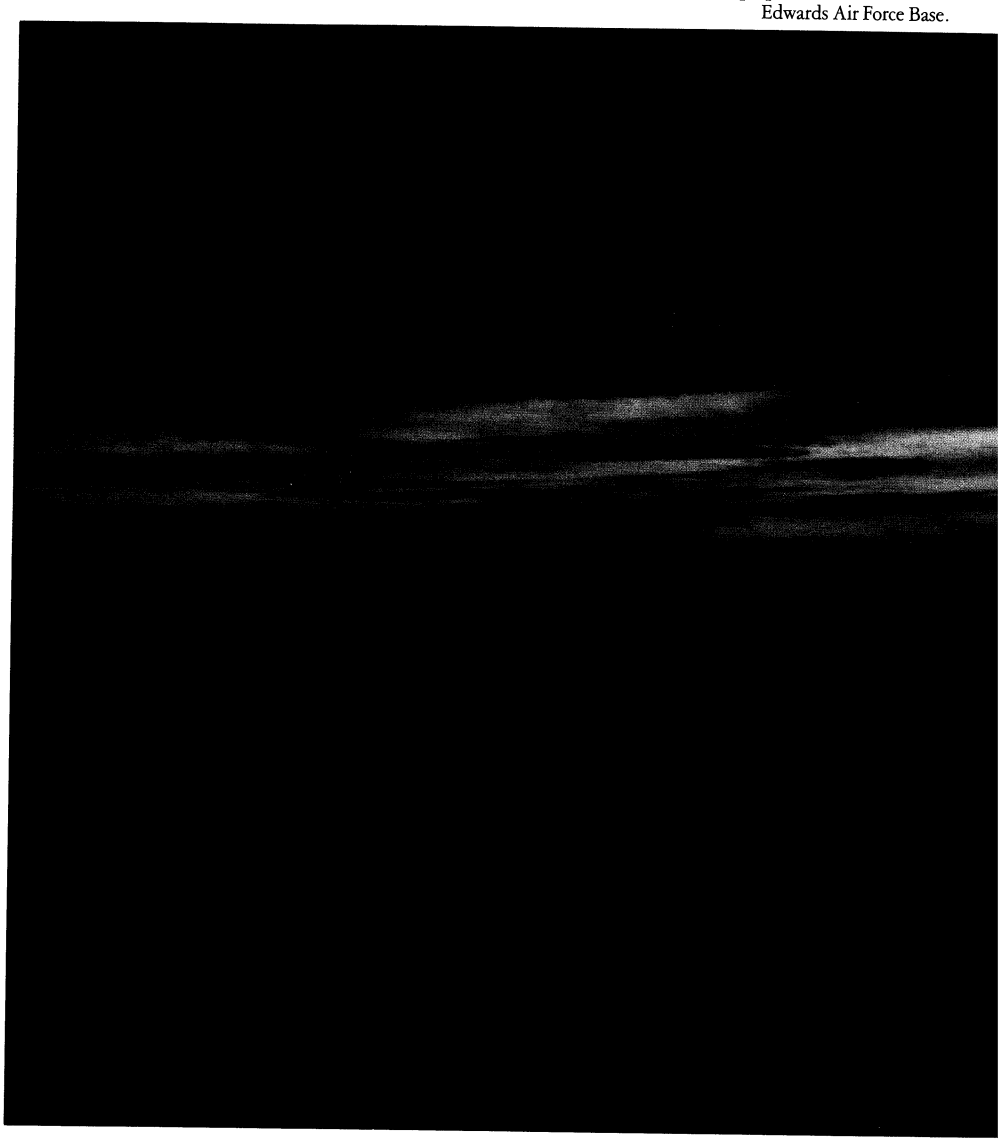
National Space Technology Laboratories, NSTL Station, Mississippi 39529. While NSTL is our smallest facility, its mission is of great importance to the nation's space program. NSTL's key function is to support the testing of the Space Shuttle's main engine and main orbiter propulsion systems. Crucial research is also conducted here in systems development and remote sensing technologies. In addition, NSTL supports other government agencies engaged in oceanographic and environmental research.

A Guide to NASA Employment Opportunities

WORK LOCATIONS DESIRED	Space Sciences	Applications Sciences	Fluid & Flight Mechanics	Materials & Structures	Propulsion Systems	Flight Systems	Measurement & Instrumentation Systems	Data Systems	Facilities and Operations	Technical Management	Life Sciences & Systems
Ames Research Center and Dryden Flight Research Facility	◉		◉	◉	◉	◉	◉	◉	◉		◉
Goddard Space Flight Center and Wallops Flight Facility	◉	◉	◉	◉	◉	◉	◉	◉	◉		
Johnson Space Center		○	○	○	○	◉	◉	◉	◉		◉
Kennedy Space Center			◉			◉		◉			
Langley Research Center	○	○	○	○		○	◉	◉	◉		
Lewis Research Center			◉	◉	◉	○	◉	◉	◉		
Marshall Space Flight Center			○	○	○	◉	◉	◉	◉		
National Space Technology Laboratories	◉	○								◉	
NASA Headquarters		○								◉	

How to Join the NASA Team

The Space Shuttle Columbia is silhouetted against the early morning sky as it prepares for touch down at Edwards Air Force Base.



Now that you know more about NASA, we'd like to know more about you.

If you think you have what it takes to join our "team"—ambition, creativity, a sense of daring and a bright, probing mind—then take the next step. Contact your College Placement Office, find out when a NASA representative will be visiting your campus, and sign up for an interview.

If we're not recruiting on your campus, send us a letter outlining your interests, a Personal Qualifications Form (ask your College Placement Counselor where to obtain one), and a copy of your transcript. Please send separate forms to each NASA Center you're considering. Addresses are listed below:

Ames Research Center
Personnel Office
Attn: College Recruitment
Program Manager
Moffett Field, CA 94035

Goddard Space Flight Center
Personnel Office
Attn: College Recruitment
Program Manager
Greenbelt, MD 20771

John F. Kennedy Space Center
Personnel Office
Attn: College Recruitment
Program Manager
Kennedy Space Center, FL 32899

Langley Research Center
Personnel Office
Attn: College Recruitment
Program Manager
Hampton, VA 23665

Lewis Research Center
Personnel Office
Attn: College Recruitment
Program Manager
21000 Brookpark Road
Cleveland, OH 44135

Lyndon B. Johnson Space Center
Personnel Office
Attn: College Recruitment
Program Manager
Houston, TX 77058

George C. Marshall Space Flight Center
Personnel Office
Attn: College Recruitment
Program Manager
Huntsville, AL 35812

National Space Technology Laboratories
Personnel Office
Attn: College Recruitment
Program Manager
NSTL Station, MS 39529

NASA Headquarters
Code: NPM
Washington, D.C. 20546

An Equal Opportunity Employer, NASA hires the most qualified persons without discrimination for reasons of race, religion, age, color, sex, national origin, or handicaps.

"A NASA career offers new engineers and scientists unlimited opportunities to excel—and rapid advancement for those with ambition and determination. In my opinion, there are more opportunities for innovation at NASA than in an industrial setting. The atmosphere here encourages sharing, creativity and a joint commitment."

Fred Povinelli
Office of Aeronautics and Space Technology
NASA employee for 23 years

"There can be no thought of finishing, for 'aiming at the stars,' both literally and figuratively, is a problem to occupy generations, so that no matter how much progress one makes, there is always the thrill of just beginning."

Dr. Robert H. Goddard,
1882-1945
Father of Modern Rocketry

NASA
National Aeronautics and
Space Administration